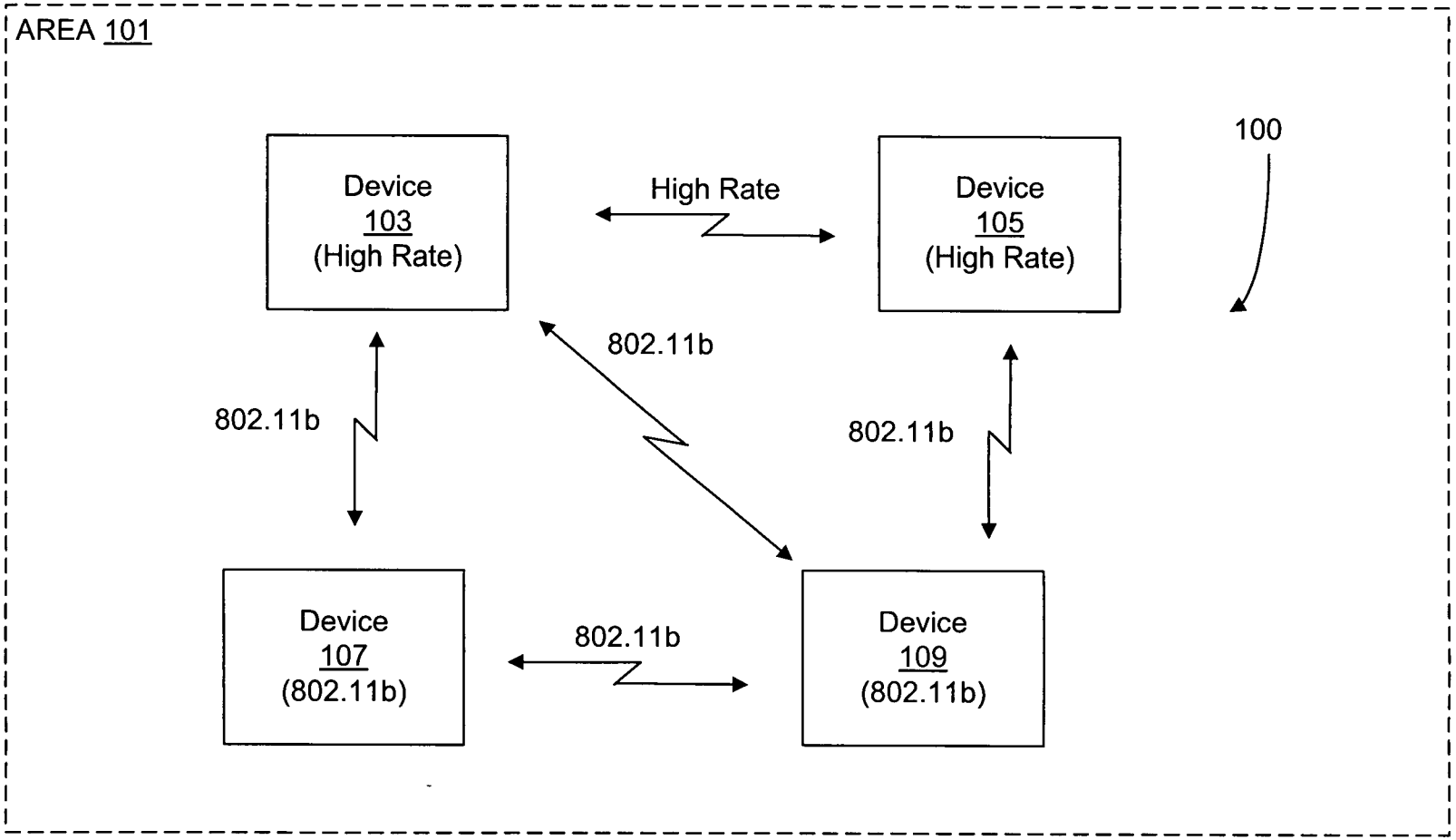

AREA 101
Device 103 (High Rate)
High Rate
Device 105 (High Rate)
100
802.11b
802.11b
802.11b
Device 107 (802.11b)
802.11b
Device 109 (802.11b)

FIG. 1

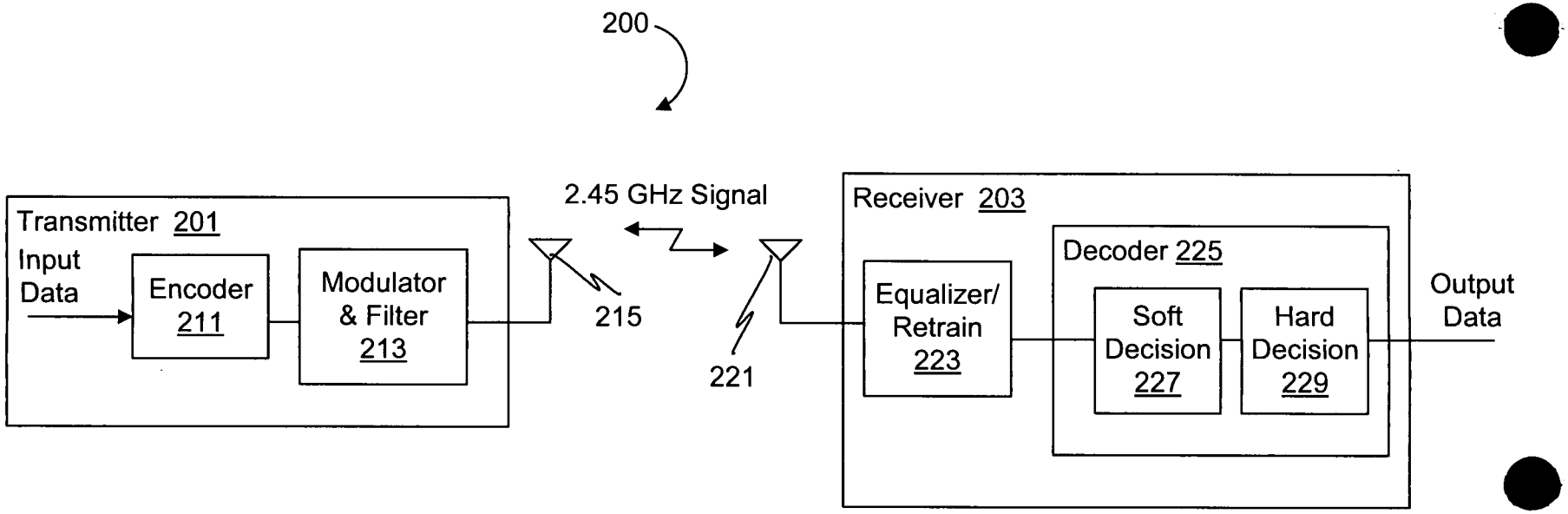

200
Transmitter 201
Input Data
Encoder 211
Modulator & Filter 213
2.45 GHz Signal
215
221
Receiver 203
Equalizer/ Retrain 223
Decoder 225
Soft Decision 227
Hard Decision 229
Output Data

FIG. 2

FIG. 3A

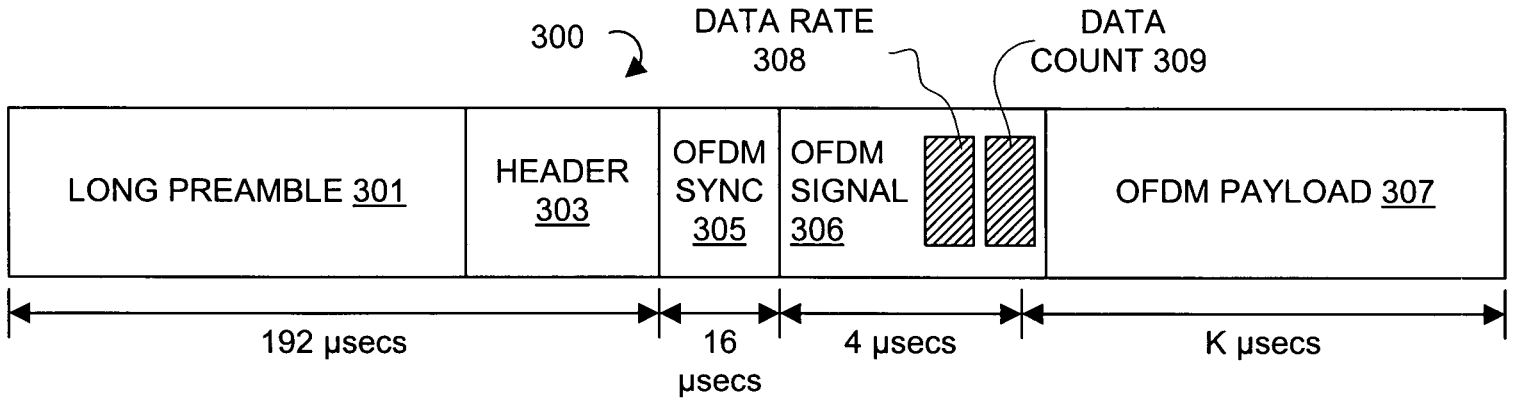

300
DATA RATE 308
DATA COUNT 309
LONG PREAMBLE 301
HEADER 303
OFDM SYNC 305
OFDM SIGNAL 306
OFDM PAYLOAD 307
192 µsecs
16 µsecs
4 µsecs
K µsecs

FIG. 3B

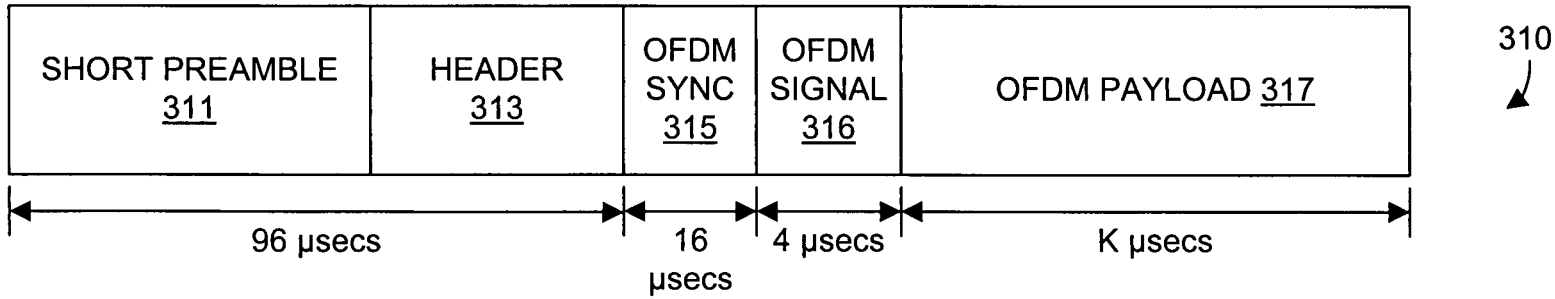

310
SHORT PREAMBLE 311
HEADER 313
OFDM SYNC 315
OFDM SIGNAL 316
OFDM PAYLOAD 317
96 µsecs
16 µsecs
4 µsecs
K µsecs

FIG. 4

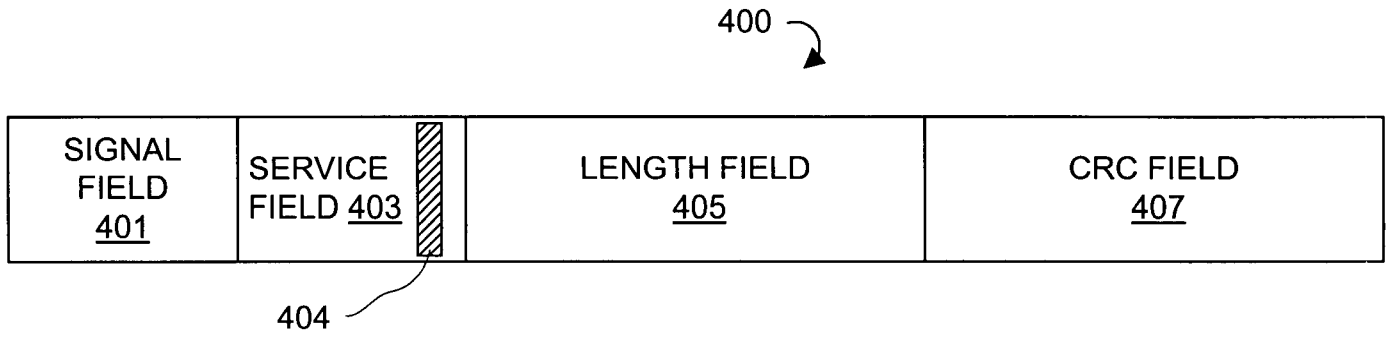
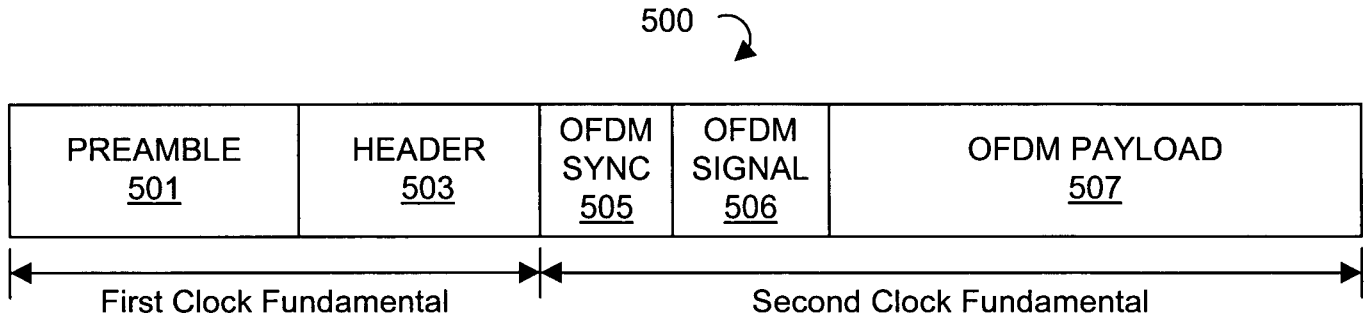

400
SIGNAL FIELD 401
SERVICE FIELD 403
LENGTH FIELD 405
CRC FIELD 407
404

FIG. 5


500
PREAMBLE 501
HEADER 503
OFDM SYNC 505
OFDM SIGNAL 506
OFDM PAYLOAD 507
First Clock Fundamental
Second Clock Fundamental

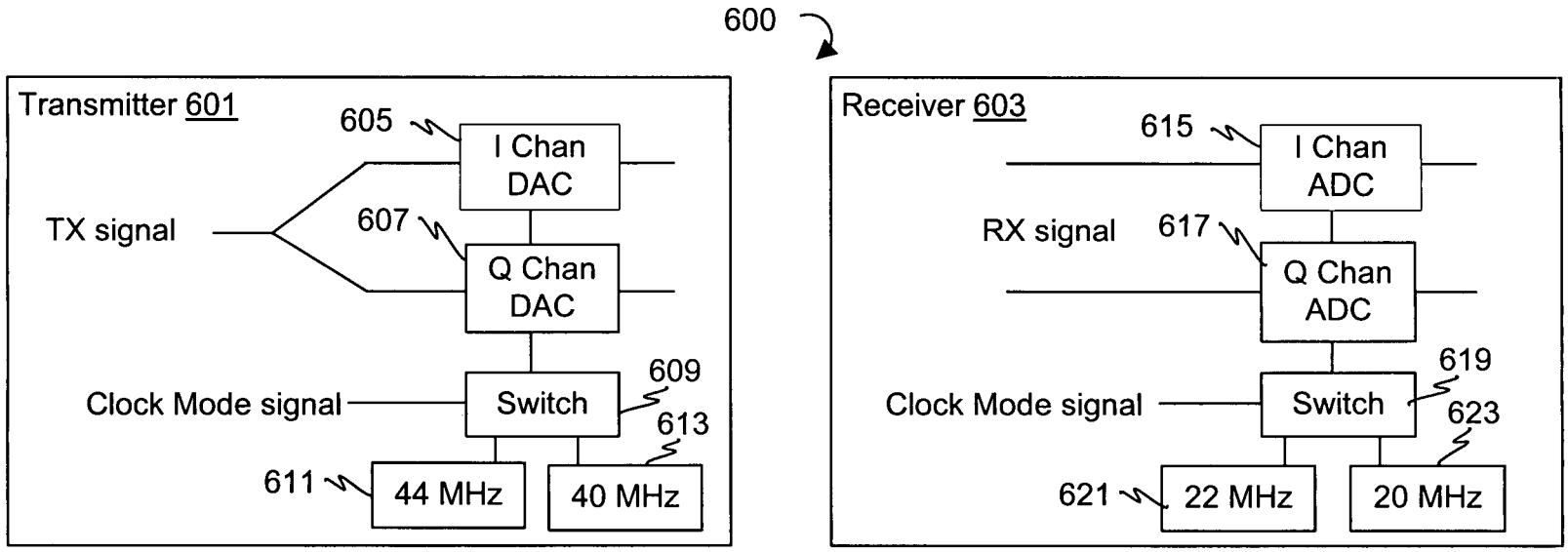

600
Transmitter 601
605
I Chan DAC
TX signal
607
Q Chan DAC
Clock Mode signal
Switch
609
613
611
44 MHz
40 MHz
Receiver 603
615
I Chan ADC
RX signal
617
Q Chan ADC
619
Clock Mode signal
Switch
623
621
22 MHz
20 MHz

FIG. 6A

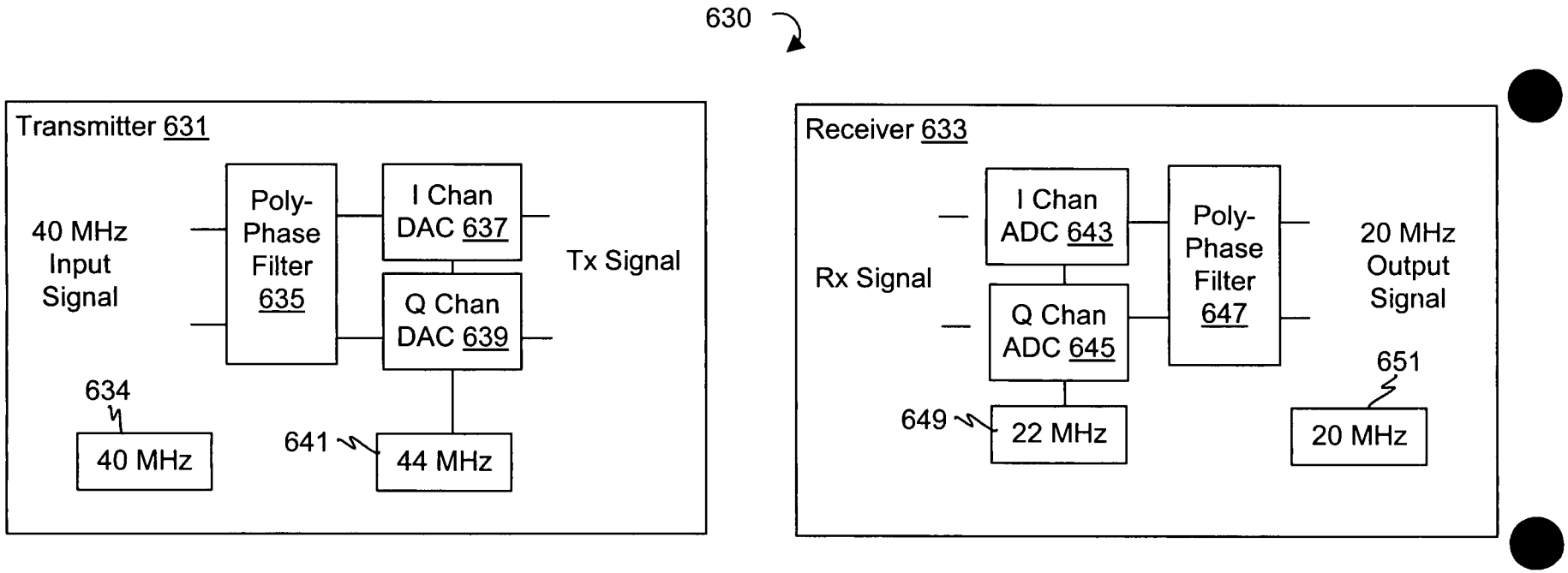

630
Transmitter 631
40 MHz Input Signal
Poly-Phase Filter 635
I Chan DAC 637
Q Chan DAC 639
Tx Signal
634
40 MHz
641
44 MHz
Receiver 633
Rx Signal
I Chan ADC 643
Q Chan ADC 645
Poly-Phase Filter 647
20 MHz Output Signal
649
22 MHz
651
20 MHz

FIG. 6B

FIG. 7A

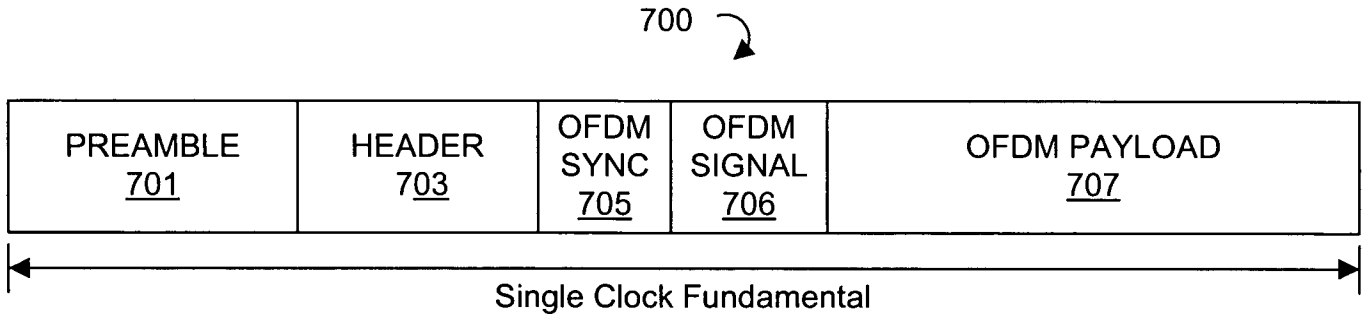


FIG. 7B

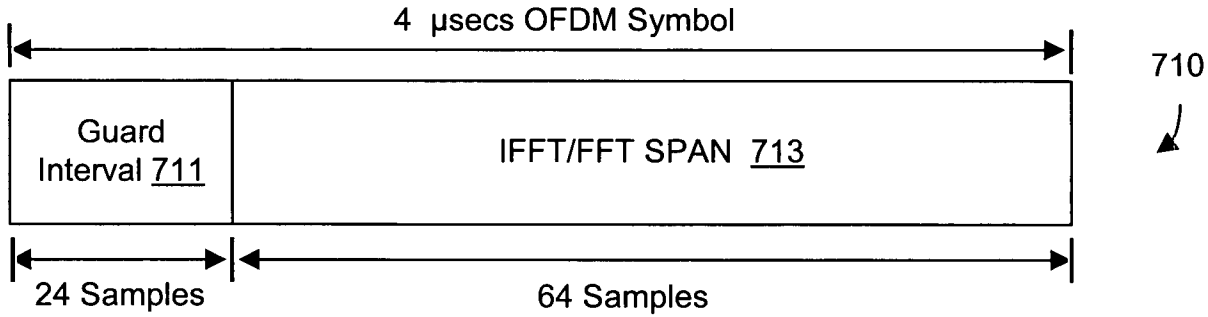


FIG. 7C

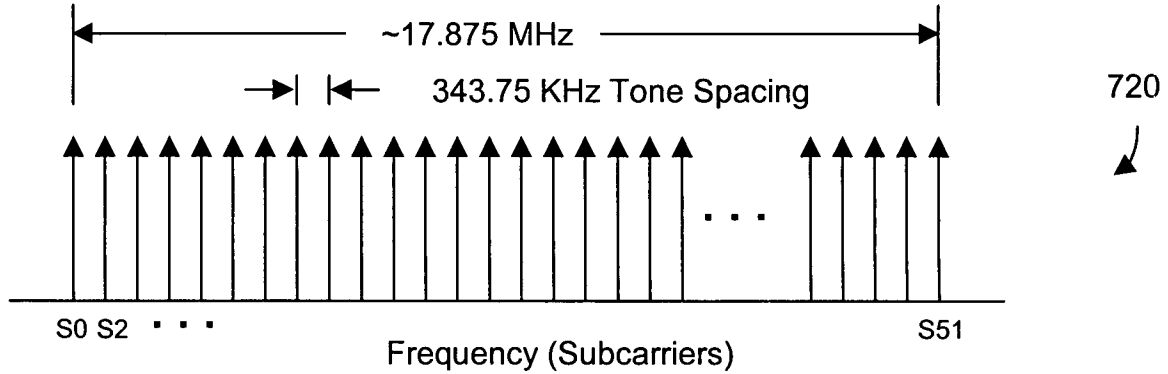


FIG. 8A

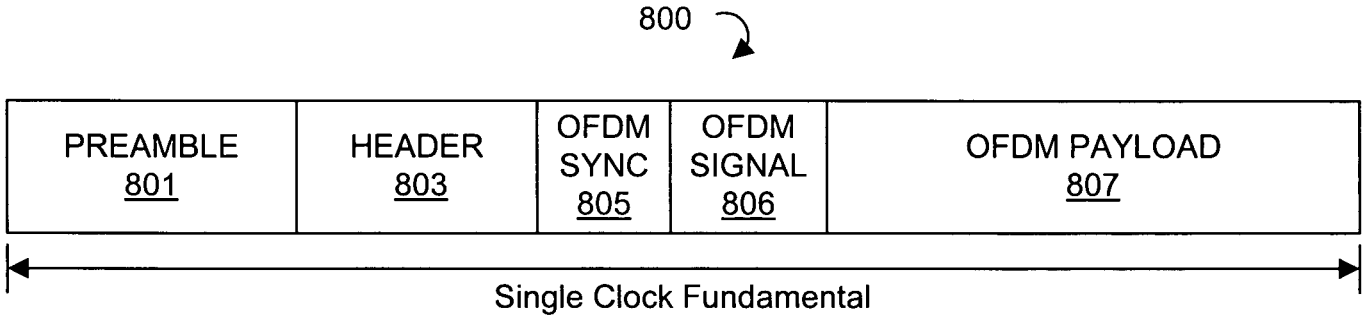


FIG. 8B

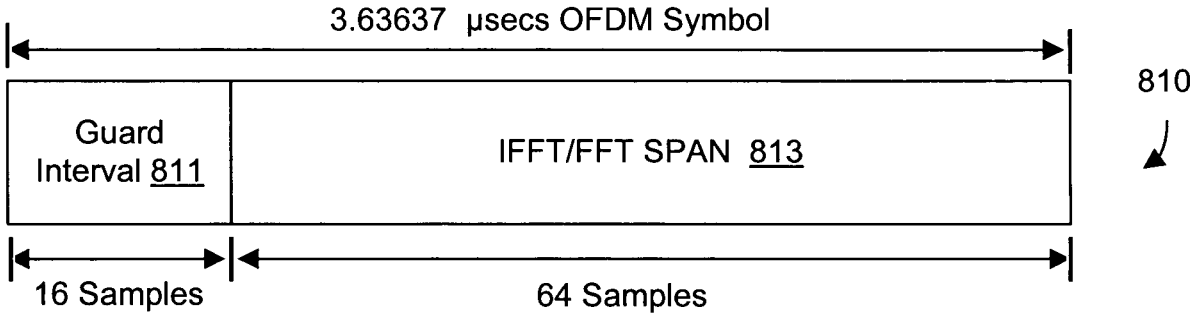


FIG. 8C

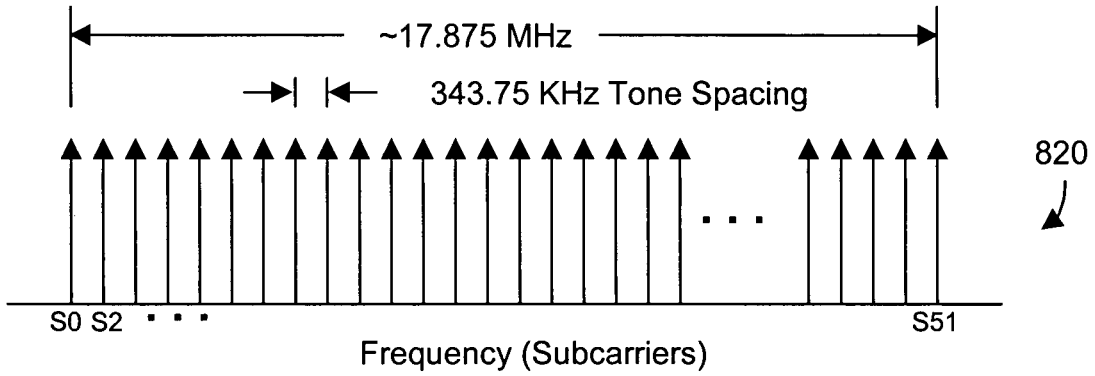


FIG. 9A

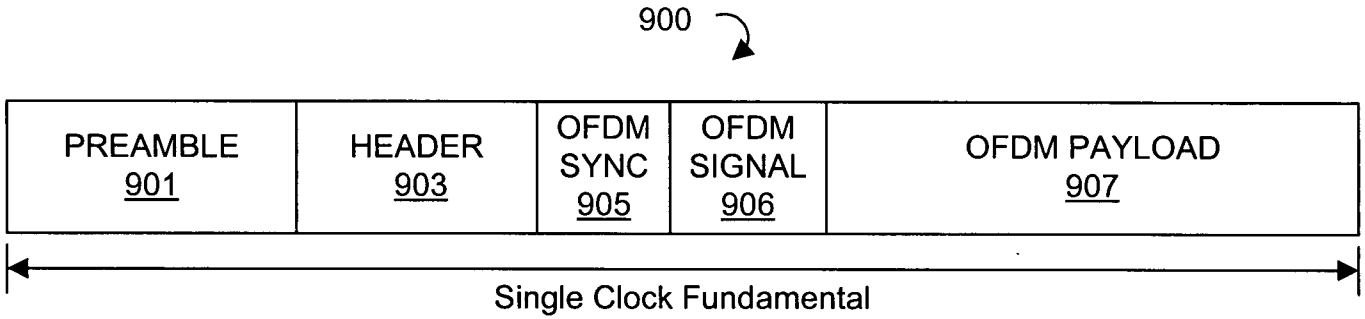


FIG.9B

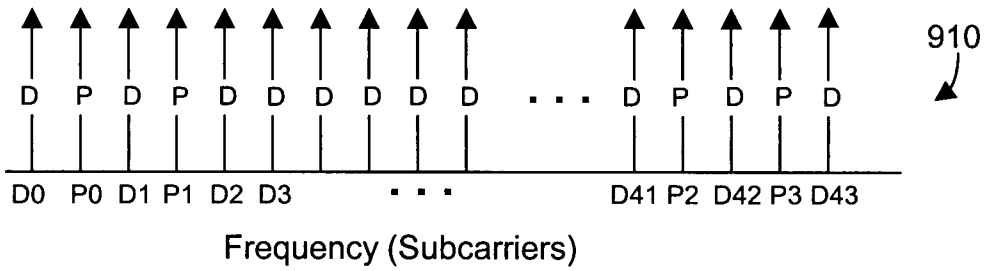


FIG. 9C

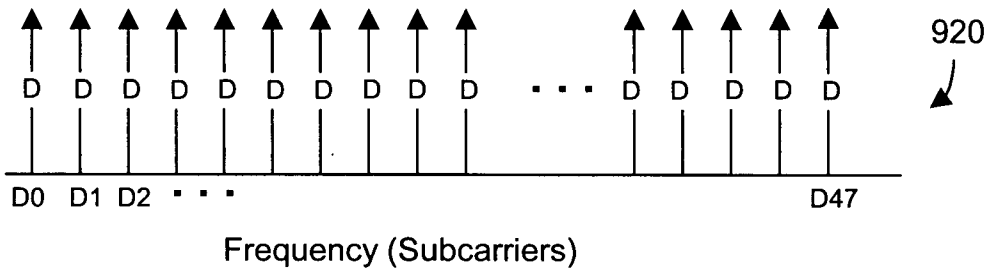


FIG. 10A

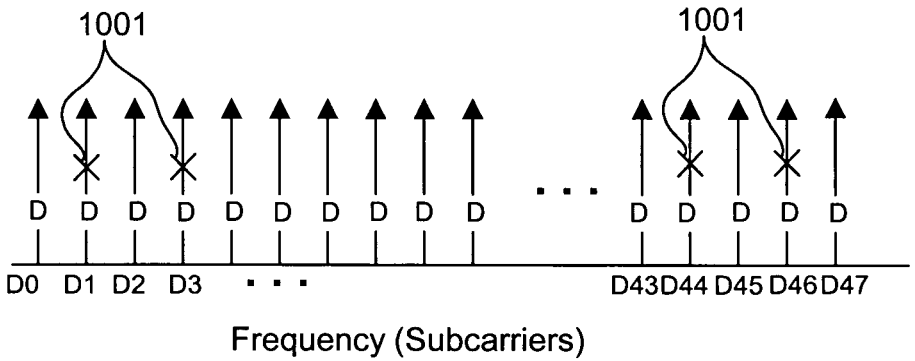
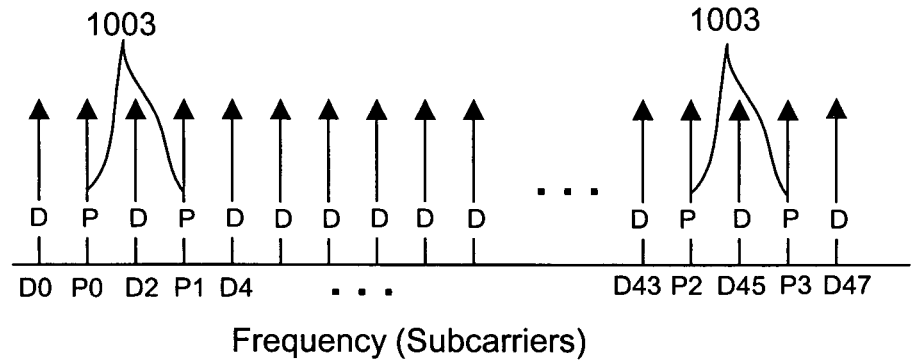


FIG. 10B



Comparson of Embodiments

Embod. #	Provided Data Rates (Mbps)	Clock Rate (MHz)	# of Sub-carriers	# of Pilot Tones	# Samples Cyclic Ext.	# Samples FFT	OFDM Symbol Duration (µsecs)	Spectral Width (relative to 802.11a)	ThermalNoise Performance (Eb/No dB) (relative to 802.11a)	Delay Spread Performance (RMS DS) (relative to 802.11a)	Comments
1 (500)	6, 9, 12, 18, 24, 36, 48, 54	20	52	4	16	64	4	same	same	802.11a	Clock switch between 20 & 22 MHz
2 (700)	6, 9, 12, 18, 24, 36, 48, 54	22	52	4	24	64	4	10% wider	0.5 dB worse	50% better	Clock switch not required; Added samples to cyclic extension
3 (800)	6.6,9.9,13.2,19.8, 26.4, 39.6, 52.8,59.4	22	52	4	16	64	3.63637	10% wider	same	10% worse	802.11a run at 22 MHz; 10% increase in data rates
4 (900, 710, 910)	5.5, 8.25, 11, 16.5, 22, 33, 44, 49.5	22	48	4	24	64	4	0.83% wider	0.5 dB worse	50% better	44 data sub-carriers; Added samples to cyclic extension
5 (900, 710, 920)	6, 9, 12, 18, 24, 36, 48, 54	22	48	0	24	64	4	0.83% wider	0.5 dB worse	50% better	48 data sub-carriers; No pilots; Added samples to cyclic extension
6 (900, 710 1000,1010)	6, 9, 12, 18, 24, 36, 48, 54	22	48	4	24	64	4	0.83% wider	0.9 dB worse	50% better	Puncture 4 of the 48 data sub-carriers Replace with 4 pilots; Added samples to cyclic extension
7 (900, 810, 910)	6.05, 9.075, 12.1, 18.15, 24.2, 36.3, 48.4, 54.45	22	48	4	16	64	3.63637	0.83% wider	same	10% worse	44 data sub-carriers 4 pilots
8 (900, 810, 920)	6.6, 9.9, 13.2, 19.8, 26.4, 39.6, 52.8, 59.4	22	48	0	16	64	3.63637	0.83% wider	same	10% worse	48 data sub-carriers. No pilots.
9 (900, 810 1000,1010)	6.6, 9.9, 13.2, 19.8, 26.4, 39.6, 52.8, 59.4	22	48	4	16	64	3.63637	0.83% wider	0.4 dB worse	10% worse	Puncture 4 of the 48 data sub-carriers Replace with 4 pilots

FIG. 11

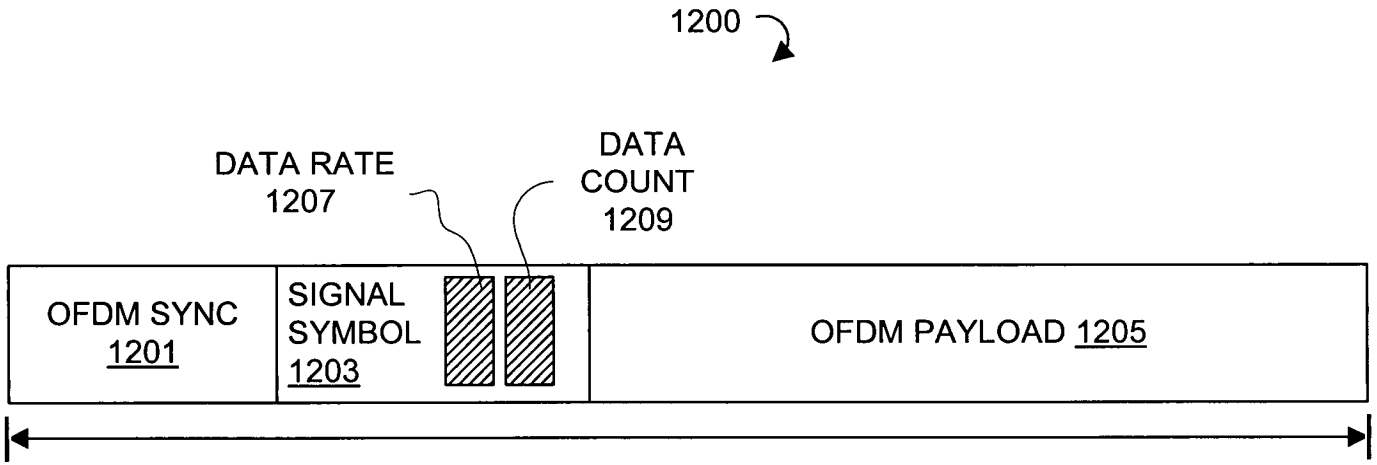

1200
DATA RATE
1207
DATA
COUNT
1209
OFDM SYNC
1201
SIGNAL
SYMBOL
1203
OFDM PAYLOAD 1205
Single Clock Fundamental

FIG. 12